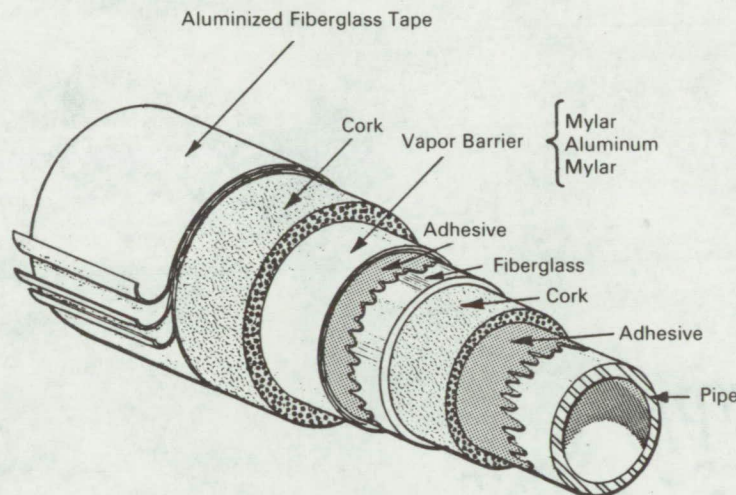


# AEC-NASA TECH BRIEF



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## Inexpensive Cryogenic Insulation Replaces Vacuum Jacketed Line



### The problem:

To provide rugged and economical field installed insulation system for cryogenic (liquid nitrogen or oxygen) pipe lines in an exposed environment as high as 600°—700°F. The system must be sealed to the atmosphere and be rugged. Vacuum jacketed piping systems are more efficient, but are expensive, requiring special procurement and exact fabrication. Also, vacuum jacketed systems are not adaptable to field alterations.

### The solution:

Commercially available aluminized Mylar, cork and fiberglass to form a multilayered sealed system.

### How it's done:

The following commercially available materials are used to fabricate the insulation system shown: (1) cork board; (2) adhesive; (3) fiberglass tape; (4) aluminum

foil faced fiberglass tape; and (5) Mylar-aluminum-Mylar (MAM) sheath.

Field use of this insulation system for both temporary and permanent lines has proved its ruggedness.

### Notes:

1. An 8-inch cryogenic pipe line using 1-inch thick insulation will have a heat leakage flow rate of 109 BTU per square foot per hour.
2. An advantage of this system is that it uses standard commercially available materials, and permits field installation at reduced cost over factory assembled systems. Adding or subtracting layers permits adaptability to suit specific installation needs.
3. The total cost of this insulation system is approximately 1/10 of the cost of a vacuum jacketed system; however, the efficiency of the system is only approximately 1/20 of a vacuum jacketed system.

(continued overleaf)

4. Inquiries concerning this innovation may be directed to:

Technology Utilization Officer  
AEC-NASA Space Nuclear Propulsion  
Office  
U.S. Atomic Energy Commission  
Washington, D.C. 20545  
Reference: B67-10264

**Patent status:**

No patent action is contemplated by AEC or NASA.

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